What is Claimed Is:

1. A low energy method of pyrolysis of hydrocarbon material comprising:

providing said hydrocarbon material;

loading said hydrocarbon material into a reaction chamber;

adding a clay and metal dust catalyst to said reaction chamber, and

heating said reaction chamber for a sufficient time to provide substantially complete pyrolysis,

said method occurring while maintaining a vacuum and yielding reaction products comprising a substantially non-charred and non-oxidized solid residue having minimal unpyrolyzed material, a substantially non-oxidized and polyaromatic hydrocarbon-free liquid hydrocarbon product and a combustible gas.

2. The method of Claim 1, wherein said clay is selected from the group consisting of montmorillonite, bentonite, beidillite and combinations thereof.

3. The method of Claim 1, wherein said clay is pillared clay.

4. The method of Claim 1, wherein said clay is a natural ore.

5. The method of Claim 1, wherein said clay is a commercial clay containing product.

6. The method of Claim 5, wherein said commercial clay product is selected from the group consisting of cat litter and oil spill absorbent and combinations thereof.

7. The method of Claim 1, wherein said clay and metal dust catalyst is added in an amount of about 0.01 wt.% to 3.0 wt.%, based on the total weight of said hydrocarbon material.

8. The method of Claim 1, wherein the metal dust is added to the clay in a ratio of between about [0.1 to 2]:[0.1 to 2]:[8] of [Al] [Mg] [clay].

9. The method of Claim 1, wherein said metal dust is added in a ratio of between about [0.5 to 1]:[0.5 to 1]:[8] of [Al] [Mg] [clay].

10. The method of Claim 1, wherein said metal dust is comprised of a mixture of aluminum and magnesium.

11. The method of Claim 1, wherein said metal dust is comprised of aluminum or magnesium.

12. The method of Claim 1, wherein said metal dust comprises Al particles of less than about 200 mesh size and Mg particles of less than about 325 mesh size.

13. The method of Claim 1, wherein said heating of said reaction chamber results in a reaction temperature of said hydrocarbon material of between about 150° to 850° F.

14. The method of Claim 13, wherein said reaction temperature of said hydrocarbon material is maintained for a period of time sufficient to complete pyrolysis.

15. The method of Claim 1, wherein said heating occurs in at least a first, second and third phases and fuel input is adjusted to take advantage of the exothermic nature of the reaction.

16. The method of Claim 15, wherein said heating in said first phase maintains a reaction temperature of between about 450° - 850°F, for a period of time adequate to initiate pyrolysis.

17. The method of Claim 15, wherein said heating in said second phase maintains a reaction temperature of between about 450° - 850°F, for a period of time adequate to provide continued pyrolysis.

18. The method of Claim 15, wherein said heating in said third phase maintains a reaction temperature of between about 450° - 850°F, for a period of time adequate to provide completion of pyrolysis.

19. The method of Claim 15, wherein said first, second and third phase occur sequentially over time.

20. The method of Claim 15, wherein said first, second and third phase occur sequentially over space, as said hydrocarbon material moves through said reaction chamber.

21. The method of Claim 1, wherein said vacuum is maintained at a pressure of between about 2 inches to 16 inches mercury.

22. The method of Claim 15, wherein said vacuum is maintained at pressure of between about 2 inches to 16 inches mercury.

23. The method of Claim 1, wherein said vacuum is maintained at a pressure of between about 5 inches to 10 inches mercury.

24. The method of Claim 15, wherein said vacuum is maintained at pressure of between about 5 inches to 10 inches mercury.

25. The method of Claim 1, wherein said hydrocarbon material is used rubber.

26. The method of Claim 1, wherein said hydrocarbon material is tar sands.

27. The method of Claim 1, wherein said hydrocarbon material is coal.

28. An apparatus for reclamation and recovery of constituents of discarded vehicle tires and other rubber based materials including organic and inorganic materials for reuse or environmentally safe disposal, said apparatus comprising:

a feed system for transferring rubber products and a catalyst into an inlet of a low temperature reactor;

one or more elongated reactor chambers having activation, decomposition, and completion zones, wherein said one or more reactor chambers each have a helicoid auger for transferring material from the inlet through said reactor and solid product from said reactor to an outlet;

an inlet and an outlet bin positioned at each end of the reactor chambers for input, reaction initiation, product decomposition, reaction completion, and extraction of the into vapor and solid material; and

a solid material recovery system.

29. An apparatus according to Claim 41, further comprising a vapor recovery system for recovering vapors from a decomposition zone of said one or reactor chambers, wherein said vapor recovery system comprises:

a heat exchanger for condensing vapors from said one or more reactor chambers;

a liquid/gas separator for separating liquids condensed in said heat exchanger; and

a vacuum pump for removing vapors from the decomposition chamber of said one or more low temperature reactor chambers through said heat exchanger and said liquid/gas separator, while maintaining a vacuum in said one or more low temperature reactor chambers.

30. An apparatus of Claim 41, wherein the feed system is a helicoid auger.

31. An apparatus of Claim 41, wherein an outlet conveyor is a helicoid auger.

32. A process for reclamation and recovery of constituents of discarded vehicle tires and other rubber products cut into pieces for reuse or environmentally safe disposal, comprising:

transferring tire pieces from a feed supply by a conveyor into a feeder bin; and

transferring the tire pieces from the feeder bin to the inlet of a low temperature reactor chamber by a helicoid auger.